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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/712,596 11/14/00 HARNETT

S 319700031REA

EXAMINER

MM91/0712

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P O BOX 828
BLOOMFIELD HILL MI 48098

WACHSMAN, H. PAPER NUMBER

2857
DATE MAILED:

07/12/01

Please find below and/or attached an Office communication concerning this application or proceeding.

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER
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DATE MAILED:

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Commissioner of Patents and Trademarks

Hal D Wachsman
Primary Examiner
Art Unit: 2857

Office Action Summary

Application No.

09/712,596

Applicant(s)

HARNETT, SEAN

Examiner

Hal D Wachsman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. The drawings have been approved by the Draftsperson's. However, the drawings are objected to under 37 CFR 1.83(a) by the Examiner. The drawings must show every feature of the invention specified in the claims. Therefore, the fuzzy logic method of tuning a tunable RF device and the method of tuning an RF impedance matching network must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

2. The Examiner notes that the original ribboned copy of U.S. patent number 5,842,154 has not yet been surrendered by the Applicant.

3. The Examiner notes that the changes to the specification found in the Certificate of Correction dated March 2, 1999 have not been entered in this Reissue application. Consequently, the Applicant is required to submit replacement paragraphs (without bracketing or underlining) to enter the Certificate of Correction changes into the specification.

4. a) Claims 5 and 6 are objected to under 37 C.F.R. 1.75(i) because each element of these claims are not separated by a line indentation. Appropriate correction is required.

b) Claims 1-37 are objected to under 37 C.F.R. 1.75(a) for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claim 1, line 1, cites "RF" which needs to be defined. Claim 1, line 17, cites "said error signal" which should be "said phase and magnitude error signal". Claim 1, line 19, cites "the value of error signal" which lacks clear antecedent basis. Claim 1, line 22, cites "the fuzzy sets" but is this referring to the "one or more fuzzy sets" ? This

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same type of problem also occurs in claim 4, line 2. Claim 1, lines 22-23, cite "said first and second error signals" which lacks clear antecedent basis. Claim 1, lines 27-28, cite "the respective fuzzy inference functions" which lacks clear antecedent basis. Claim 2, line 6, cites "said drive signal values" but exactly which drive signal values are being referred to here ? Claim 2, line 8, cites "such weighted drive signal values" but exactly which weighted drive signal values are being referred to here ? This same type of problem also occurs in claim 6 line 7. Claim 3, line 2, cites "said fuzzy logic rules" but exactly which fuzzy logic rules are being referred to here ? Claim 3, lines 5-6, cites "each drive signal value" but exactly which drive signal values are being referred to here ? Claim 5, line 15, cites "said error signals" which should be "said phase and magnitude error signals". This same type of problem also occurs in claim 5 line 25. Claim 5, line 17, cites "the values of error signals" but is this referring to the values of the phase and magnitude error signals ? Claim 5, lines 22-23, cite "said fuzzy logic rules for each set for which said error signals enjoy membership" which lacks antecedent basis. The last 2 lines of claim 5 cite "said first variable impedance device driven element" which lacks clear antecedent basis. This same type of problem also occurs in the last 2 lines of claims 6-8. Claim 7, line 5, cites "said tunable RF means" however the antecedent basis is "tunable RF device". Claim 7, line 11, cites "each said error signal" but is it each first and second error signal that is being referred to here ? This same type of problem also occurs in claim 7 line 13. Claim 7, lines 16-17, cite "the amount of overlapping membership of the error signal value in one or more fuzzy sets" which lacks clear antecedent basis. Claim 7, lines 21-22, cite "said fuzzy logic rules" which lacks

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antecedent basis. Claim 7, line 25, cites "said error signals" which it appears should be "said first and second error signals". Claim 8, line 7, cites "additional respective fuzzy inference functions" which should be "additional respective fuzzy inference functions".

Claim 9, line 7, cites "network impedance which may be varied" which implies that the invention may or may not do what is described here. This same type of problem also occurs in claim 16, line 7. Claim 9, line 8, cites "detecting at least one of a phase and magnitude error" but a phase and magnitude error of what exactly is being referred to here? In claim 9, line 9, it appears that the word "respectively" is missing after the words "magnitude error signal". Claim 9, line 10, cites "the phase and the magnitude" which lacks clear antecedent basis. In claim 9, line 12, it appears that the word "corresponding" is missing before "phase error signal". This same type of problem also occurs in claim 9, line 13. The last 2 lines of claim 9 contain a "thereby" clause which only cites an intention of use and does not add further structure to the claim (see *In re Mason* 114 USPQ 127, CCPA (1957)). This same type of problem also occurs in the last 2 lines of claim 16. In addition, the last 2 lines of claim 9 cite "the load impedance" however the antecedent basis is "variable load impedance". This same type of problem also occurs in claim 16, lines 9-10 and 13-14. Claim 10, line 2, cites "the at least one phase and magnitude error signals" which it appears should be "the at least one of a corresponding phase and magnitude error signals". The last 2 lines of claim 10 cite "at least one of a fuzzy set" which it appears should be "at least one fuzzy set". This same type of problem also occurs in the last line of claim 17. Claim 11, line 2, cites "the membership values" however the antecedent basis is singular. This same type of

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problem also occurs in claim 18, line 2. Claim 24, line 1, cites "RF" which needs to be defined. This same type of problem also occurs in claim 31, line 1. Claim 24, line 4, cites "determining a phase error and a magnitude error.." but a phase and magnitude error of what exactly is being referred to here ? Claim 28, line 1, cites "the step of applying fuzzy logic rules" however the antecedent basis is "the step of applying logic rules". Claim 28, lines 2-3, cite "combining said weighted at least one respective fuzzy output value" but combining with what ? This same type of problem also occurs in claim 35 lines 2-3. Claim 29, line 1, cites "the fuzzy logic rules" which should be "the logic rules". This same type of problem also occurs in claim 36, line 1. Claim 31, lines 6 and 7, cite "the sensed signal" which should be "the corresponding sensed signal". This same type of problem also occurs in claim 32, lines 2 and 3 and claim 36, line 2. Claim 36, line 4, cites "the first sensed signal" which lacks clear antecedent basis. The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 31-37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a step is missing to show the connection between the "generating a control signal..." step, and the "applying fuzzy logic ..." step because the "generating a control signal.." step dangles in the claim as there is no connection to the applying and determining steps which precede it and the claim does not particularly point out how the application of fuzzy logic results in the generation of the control signal.

7. Claims 9-37 are rejected under 35 U.S.C. 251 as being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based. See *Hester Industries, Inc. v. Stein, Inc.*, 142 F.3d 1472, 46 USPQ2d 1641 (Fed. Cir. 1998); *In re Clement*, 131 F.3d 1464, 45 USPQ2d 1161 (Fed. Cir. 1997); *Ball Corp. v. United States*, 729 F.2d 1429, 1436, 221 USPQ 289, 295 (Fed. Cir. 1984). A broadening aspect is present in the reissue which was not present in the application for patent. The record of the application for the patent shows that the broadening aspect (in the reissue) relates to subject matter that applicant previously surrendered during the prosecution of the application. Accordingly, the narrow scope of the claims in the patent was not an error within the meaning of 35 U.S.C. 251, and the broader scope surrendered in the application for the patent cannot be recaptured by the filing of the present reissue application.

The Reasons for Allowance in U.S. application serial no. 08/929,870 identified the following claim limitations as distinguishing over the prior art of record:

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- a) "applying fuzzy logic rules to said phase and magnitude error signals according to the fuzzy sets for which said first and second error signals enjoy membership";
- b) "means for applying fuzzy logic rules to said phase and magnitude error signals according to the fuzzy sets for which said error signals enjoy membership"; and
- c) "applying fuzzy logic rules to said first and second error signals according to the fuzzy sets for which said first and second error signals enjoy membership".

Each of these claim features cited above have been omitted from claims 9-37 resulting in providing a broadening aspect to the claims of 08/929,870 (now U.S. patent no. 5,842,154). The Examiner respectfully notes that the record of U.S. application serial no. 08/929,870 shows that the Applicant did not provide any comments considered necessary by the Applicant before the payment of the issue fee with respect to the Reasons for Allowance. Thus, the Applicant did not present on the record a counter statement or comment as to the examiner's reasons for allowance, and permitted the claims to issue. The omitted limitations are thus established as relating to subject matter previously surrendered.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al. (5,889,252) in view of Travaglia et al. (5,805,649).

As per claim 31, Williams et al. (Abstract, figures 2, 4, col. 2, lines 25-34, col. 4, lines 25-41) disclose the determining step. Williams et al. (Abstract, figures 2, 4, col. 6, lines 18-29) disclose the generating step. It appears that Williams et al. does not clearly disclose the applying step. However, Travaglia et al. (Abstract, col. 6, lines 34-40, 52-54) teach the applying step. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Travaglia et al. to the invention of Williams et al. as specified above because the invention of Williams et al. utilizes phase error detection in control and the invention of Travaglia et al. provides a fuzzy controller that receives as input a phase error signal.

As per claim 32, Travaglia et al. (Abstract, figure 1, col. 5, lines 42-48, col. 6, lines 34-38) teach the features of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Travaglia et al. to the invention of Williams et al. as specified above because that invention of Williams et al. utilizes phase error detection in control and the invention of Travaglia et al. provides a fuzzy controller that receives as input a phase error signal.

As per claim 33, Travaglia et al. (Abstract, col. 5, lines 42-48, col. 6, lines 57, 58, col. 7, lines 7-10) teach the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Travaglia et al. to the invention of Williams et al. as specified above

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because that invention of Williams et al. utilizes phase error detection in control and the invention of Travaglia et al. provides a fuzzy controller that receives as input a phase error signal.

As per claims 34 and 35, Travaglia et al. (Abstract, col. 4, lines 51-67, col. 5, lines 1-7) teach the features of each of these claims. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Travaglia et al. to the invention of Williams et al. as specified above because that invention of Williams et al. utilizes phase error detection in control and the invention of Travaglia et al. provides a fuzzy controller that receives as input a phase error signal.

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al. (5,889,252) in view of Travaglia et al. (5,805,649) as applied to claim 32 above, and further in view of the Applicant's Admissions of the prior art.

As per claim 37, the Applicant's Admissions of the prior art (see col. 2, lines 34-37 of U.S. patent no. 5,842,154) teach the features of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the inventions of Williams et al. and Travaglia et al. as specified above because as taught by the Applicant's Admissions of the prior art (col. 2, lines 33-37 of U.S. patent no. 5,842,154) in the fuzzy logic control process the process control engineer establishes a number of overlapping fuzzy sets. Consequently, such a procedure would also be applicable to the establishment of overlapping fuzzy sets for the fuzzy controller of Travaglia et al.

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11. Claims 1-8 are allowed subject to the appropriate correction of the 37 C.F.R.


1.75(a) objections noted above.

12. The following references are cited as being art of general interest: Mavretic et al. which disclose an apparatus for matching a variable load impedance with an RF power generator impedance, Day et al. which disclose a fuzzy logic servo controller and Barnes et al. which disclose a method and apparatus for igniting a plasma in an R.F. plasma processor.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal D Wachsman whose telephone number is 703-305-9788. The examiner can normally be reached on Monday to Friday 7:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 703-308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Hal D Wachsman
Primary Examiner
Art Unit 2857

HW
July 10, 2001